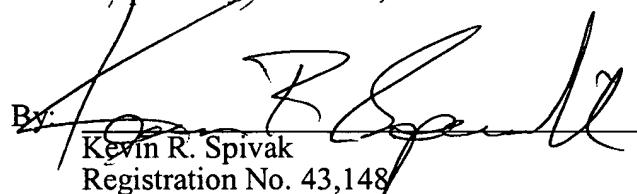


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Dated: July 12, 2001

Respectfully submitted,
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

For the convenience of the Examiner, the changes made are shown below with deleted text in strikethrough and added text in underline.

In the Specification:

Page 1 before the first paragraph, has been amended to include the following insert:

This application claims priority to International Application No. PCT/DE99/00068 which was published in the German language on January 14, 1999.

Page 1 before the first paragraph, please delete the following:

Description

Page 1, between lines 6 and 7 has been amended to include the following headings:

TECHNICAL FIELD OF THE INVENTION

BACKGROUND OF THE INVENTION

Paragraph beginning on line 21 of page 1 has been amended as follows:

~~Conventional speech recognition systems are therefore still not used for many applications, although in principle they would be suitable for them from the viewpoint of the user. The invention is therefore based on the object of specifying a technical teaching which makes it possible for speech recognition to be used, even for those applications where relatively great expenditure has to be ruled out for economic or other reasons. This object is can be achieved by a data processing system or communications terminal with a device for recognizing speech or by a method for recognizing certain acoustic objects according to the invention one of the patent claims.~~

Please insert the following paragraphs between lines 33 and 34 of page 1 as follows:

Conventional speech recognition systems are therefore still not used for many applications, although in principle they would be suitable for them from the viewpoint of the user.

SUMMARY OF THE INVENTION

In one embodiment of the invention, there is a data processing system (DPCD) or communications terminal (DPCD) with a device (SRU) for recognizing speech having the following features, a speech recognition device to recognize acoustic objects (AO), the acoustic objects being individual letters, combinations of letters or control commands, or configured to recognize such objects; and a device for the acoustic output (DU) or optical display (DU) of recognized acoustic objects (RAO).

In one aspect of the invention, the speech recognition device (SRU) configured such that the recognition of a control command causes the output or display of an acoustic object to trigger the output or display of a further acoustic object.

In another aspect of the invention, a data memory (MU) which is configured such that the recognition of an acoustic object or a sequence of objects which corresponds to an entry in the data memory triggers the display or output of the entry (ME) or a function (FU) of the system associated with the entry.

In still another aspect of the invention, a recognition capacity is improved by a comparison of possible objects or object sequences with existing entries in the data memory (MU).

In yet another aspect of the invention, the speech recognition device brought, with the aid of certain control commands, into specific operating states for the recognition of individual letters, combinations of letters or control commands.

In another embodiment of the invention, there is a method for recognizing acoustic objects, recognizing acoustic objects using a speech recognition algorithm, individual letters,

combinations of letters or control commands, or configuring the algorithm to recognize such objects and; acoustically outputting or optically displaying recognized acoustic objects.

In one aspect of the invention, wherein recognition of a control command causes the output or display of an acoustic object to trigger the output or display of a further acoustic object.

In another aspect of the invention, wherein the recognition of an acoustic object or a sequence of objects which corresponds to an entry in the data memory triggers the display or output of the entry or a function of the system associated with the entry.

In still another aspect of the invention, a recognition capacity is improved by a comparison of possible objects or object sequences with existing entries in the data memory.

In yet another aspect of the invention, the speech recognition algorithm is brought, with the aid of certain control commands, into specific operating states for the recognition of individual letters, combinations of letters or control commands.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is explained in more detail below on the basis of preferred exemplary embodiments with the aid of the figure.

Figure 1 shows an exemplary structure and mode of operation of a preferred embodiment of a system according to the invention.

DETAILED DESCRIPTION OF THE INVENTION

The invention is based on specifying a technical teaching which makes it possible for speech recognition to be used, even for those applications where relatively great expenditure has to be ruled out for economic or other reasons. This can be achieved by a data processing system or communications terminal with a device for recognizing speech or by a method for recognizing certain acoustic objects according to the invention.

Paragraph beginning on line 34 of page 1 has been amended as follows:

~~The product according to~~ In the invention, a data processing system or communications terminal, has a device for recognizing speech which is set up specifically to recognize certain acoustic objects, to be specific individual letters, combinations of letters or control commands, or can be specifically configured to recognize such objects.

Paragraph beginning on line 14 of page 2 has been amended as follows:

If the user establishes a misrecognition on the basis of the acoustic output or optical display, ~~he~~ the user can repeat the acoustic input of the object to be recognized. Since this process possibly does may not lead to correct recognition quickly in a very short time, it is provided according to a preferred embodiment of the present invention that the speech recognition device is set up, or can be configured, in such a way that the recognition of a certain first control command has the effect following the output or display of an acoustic object of triggering the output or display of a further acoustic object in the preferred embodiment. This enables the user after the output or display of an acoustic object, that is for example after an established misrecognition, to make the system output a further acoustic object by the acoustic input of a special acoustic object, to be specific a control command.

Paragraph beginning on line 12 of page 3 has been amended as follows:

~~Further preferred embodiments of the present invention are the subject of further subclaims.~~

Paragraph beginning on line 14 of page 3 has been amended as follows:

~~The invention is explained in more detail below on the basis of preferred exemplary embodiments with the aid of figures.~~

Paragraph beginning on line 17 of page 3 has been amended as follows:

~~Figure 1 shows in a schematic way the structure and mode of operation of a preferred embodiment of a system according to the invention.~~

Paragraph beginning on line 20 of page 3 has been amended as follows:

~~As represented in figure~~ Referring to Figure 1, this embodiment of a data processing system (DPCD) or communications terminal (DPCD) according to the invention comprises a speech recognition unit (SRU), which recognizes acoustic objects (AO) spoken by a user of the system and feeds the recognized acoustic objects (RAO) to a device for acoustic output or optical display (DU). According to the present invention, the speech recognition device is set up specifically to recognize certain acoustic objects (AO), to be specific individual letters, combinations of letters or control commands, or can be configured specifically to recognize such objects.

Paragraph beginning on line 33 of page 3 has been amended as follows:

The speech recognition device consequently assigns to an acoustic object (AO) spoken by the user in each case an acoustic object recognized by this device (RAO). Since the recognition of natural speech is always subject to a certain uncertainty for fundamental reasons, the recognized acoustic object will generally be, depending on the speech recognition algorithm used, the most probable or most plausible acoustic object that comes into consideration, taking into account the determined features of the spoken acoustic object.

Paragraph beginning on line 7 of page 4 has been amended as follows:

The user receives via the output or display device (DU) an acknowledgement message concerning the result of the recognition process. ~~He~~ The user then has the possibility of responding to this according to the type of result involved. If the acoustic object was misrecognized, ~~he~~ the user has the possibility of notifying the speech recognition algorithm that

the acoustic object has not been correctly recognized, or that ~~he~~ the user wanted to have a different object recognized, by saying a control command intended for this purpose, for example the word "again". ~~He~~ The user then has the opportunity to say once again the object desired-by him. This process can be continued until the speech recognition unit recognizes the desired object.

Paragraph beginning on line 21 of page 4 has been amended as follows:

The input of another control command, for example the word "incorrect", could control the speech recognition algorithm in such a way that a further acoustic object is output, ; ~~preferably~~ Preferably that object of which the probability or plausibility is admittedly lower than that of the object previously output, but greater than that of all the other objects coming into consideration. In this case, it would not be necessary for the user to say the object again, ; instead, Instead further candidates would continue to be offered for the object to be recognized until the user no longer inputs the corresponding control command or possibly inputs an expressly confirmatory command, for example "correct".

Paragraph beginning on line 34 of page 4 has been amended as follows:

According to a further ~~preferred~~ embodiment, it is possible to provide a control command, for example the word "continue", which, when recognized following the speaking or display of an acoustic object, has the effect of triggering the display or output of an object which follows the former object ~~in a certain sense~~. The sequence of the objects does not, in this case, have to be fixed by the magnitude of recognition probabilities or plausibility values. It ~~but~~ may also be dictated by the sequence of entries in a memory unit (MU) of the system, or by alphabetical sequences of objects or sequences of objects semantically defined within a defined context. For example, the sequence of objects could be defined by the order within a database, a telephone directory or the structure of a file stored in the memory unit, for example a customer file, a dictionary, or similar files.

Paragraph beginning on line 13 of page 5 has been amended as follows:

~~When this patent application mentions devices~~ Devices which are set up or can be configured for a certain function or mode of operation, ~~this means that~~ means that the corresponding functional features of these devices may be permanently or temporarily restricted. Furthermore, these devices can be set up or configured by all those involved between the manufacturer and the user by manufacturing processes, settings on the hardware or the use or parameterization of software or equivalent means or measures for a certain function or mode of operation. A person skilled in the art will readily deduce from this description numerous similar or equivalent means or measures for this purpose.

Paragraph beginning on line 5 of page 7 has been amended as follows:

With the present invention, ~~in particular~~ the number of telephone entries which can be called up by voice selection in a mobile telephone or cordless phone or in a wire-bound telephone can therefore be increased ~~at will~~. In the case of customary systems of this type, ~~only~~ a limited number of entries was allowed for voice selection, from experience at most 20 or 30 entries. This was due to the memory space to be made available for the voice samples to be recognized, i.e. due to the resultant costs and space requirement. If the number of entries was further increased, experience showed that the effort for training the speech recognition increased considerably, which led to lower user acceptance.

Paragraph beginning on line 5 of page 7 has been amended as follows:

According to ~~a preferred~~ embodiment of the present invention, the speech recognition algorithm is trained by the user ~~only~~ for the letters of the alphabet, and possibly combinations, and just a few control commands. It is in this way set up or appropriately configured by the user for the recognition of these acoustic objects. Interrogation takes place by the acoustic input of initial letters and (preferably up to two) subsequent letters. Misrecognitions are reduced by

plausibility checks, i.e. for example by comparison of the objects with entries in a memory device. The names input are spoken ~~only~~ once and converted in an encoder with a low bit rate (for example half rate of GSM) and stored at the corresponding memory location, possibly in a compressed form.

Paragraph beginning on line 35 of page 7 has been amended as follows:

Alternatively, a synthesis program which synthesizes voice from a name may also be used, possibly requiring less memory space. In any event, the speech recognition does not have to be trained for a large number of names, but only for a fixed set of approximately 30 sequences of letters and control commands.

One page 8, line 39, please replace “Patent Claims” with --WHAT IS CLAIMED IS--.

In the Claims:

1. (Amended) A ~~data processing system (DPCD) or communications terminal (DPCD)~~ with a device (~~SRU~~) for recognizing speech ~~comprising: having the following features:~~

a) ~~the a speech recognition device is set up specifically to recognize certain acoustic objects (AO), the acoustic objects being at least one of to be specific individual letters, combinations of letters, or control commands, and or can be configured specifically to recognize the acoustic such objects; and~~

b) ~~a device for the acoustic output (DU) or optical display (DU) of recognized acoustic objects, (RAO) is provided.~~

2. (Amended) The system as claimed in claim 1, ~~wherein~~ the speech recognition device is (~~SRU~~) of which is set up or can be configured in such a way that the recognition of one of the

~~a certain first control commands has the effect following causes~~ the output or display of an acoustic object ~~to trigger of triggering~~ the output or display of a further acoustic object.

3. (Amended) The system as claimed in claim 1, further comprising: ~~one of the preceding claims, having~~ a data memory (MU) which is ~~set up or can be~~ configured in such a way that the recognition of one of the ~~an~~ acoustic objects or a sequence of objects which corresponds ~~or correspond~~ to an entry in ~~the~~ a data memory ~~has the effect of triggering triggers~~ the display or output of ~~this~~ the entry (ME) or a function (FU) of the system associated with ~~this~~ the entry.

4. (Amended) The system as claimed in claim 3, in which ~~the~~ a recognition capacity is improved by a comparison of possible objects or object sequences with existing entries in the data memory (MU).

5. (Amended) The system as claimed in claim 1, wherein ~~one of the preceding claims,~~ the speech recognition device is switched ~~of which can be brought~~, with the aid of ~~certain~~ the control commands, into specific operating states for the recognition of the individual letters, combinations of letters and/or control commands.

6. (Amended) A method for recognizing ~~certain~~ acoustic objects, comprising: ~~in which~~
a) ~~a speech recognition algorithm which is set up specifically to recognize certain~~ recognizing acoustic objects using a speech recognition algorithm, ~~to be specific~~ the acoustic objects being at least one of individual letters, combinations of letters, ~~or~~ control commands, and ~~a~~ ~~or can be configured~~ configured the algorithm specifically to recognize ~~such~~ the acoustic objects ~~is used~~ and;

b) ~~recognized acoustic objects are acoustically output~~ outputting or optically displayed displaying recognized acoustic objects.

7. (Amended) The method as claimed in claim 6, ~~which is set up or can be configured in such a way that the wherein~~ recognition of a one of the certain first control commands has the effect ~~following causes~~ the output or display of ~~an~~ one of the acoustic objects ~~of triggering to trigger~~ the output or display of another ~~a further~~ acoustic object.

8. (Amended) The method as claimed in claim 6, one of the preceding method claims, ~~which is set up or can be configured in such a way that wherein~~ the recognition of one of the ~~an~~ acoustic objects or a sequence of acoustic objects which corresponds ~~or correspond~~ to an entry in ~~the a~~ data memory has the effect of triggering triggers the display or output of ~~this the~~ entry or a function of the system associated with ~~this the~~ entry.

9. (Amended) The method as claimed in ~~one of the preceding method claims, in which the~~ claim 6, wherein a recognition capacity is improved by a comparison of possible acoustic objects or acoustic object sequences with existing entries in the data memory.

10. (Amended) The method as claimed in claim 6, wherein one of the preceding method claims, the speech recognition algorithm ~~of which can be~~ is switched brought, with the aid of ~~certain~~ control commands, into specific ~~an~~ operating states for the recognition of individual letters, combinations of letters or control commands.

In the Abstract:

Please replace the Abstract in its entirety with the Abstract attached hereto.

**DATA PROCESSING SYSTEM OR COMMUNICATIONS TERMINAL WITH A
DEVICE FOR RECOGNIZING SPEECH AND METHOD FOR RECOGNIZING
CERTAIN ACOUSTIC OBJECTS**

Abstract

Small devices with database functionality, for example mobile telephones with a telephone directory function, can be controlled with the aid of a simplified speech recognition device which is specially designed intentionally for the recognition of control commands and individual letters or combinations of letters. This makes it possible for the recognition capacity to be improved and allows larger databases to be used with less demands on the capacity of the hardware.